



**OPERATING PERMIT (Conditional Major)** Issued Pursuant to Tennessee Air Quality Act

**Date Issued:**

**Permit Number:**

457624

**Date Expires:** April 1, 2013

**Issued To:**

Materials and Energy Corporation

**Installation Address:**

East Tennessee Technology Park  
1014 Avenue D  
Oak Ridge

**Installation Description:**

Source 01: Mixed Waste Processing Facility  
Baghouse, Carbon Adsorber,  
And HEPA Filter Controls

**Emission Source Reference No.**

73-0163  
Conditional Major Source

The holder of this permit shall comply with the conditions contained in this permit as well as all applicable provisions of the Tennessee Air Pollution Control Regulations.

**GENERAL CONDITION:**

1. The application that was utilized in the preparation of this permit is dated March 18, 2003 and signed by Steve Douglas, Compliance Director, for the permitted facility. If this person terminates employment or is reassigned different duties such that they are no longer the responsible person to represent and bind the facility in environmental permitting affairs, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification shall be in writing and submitted within thirty (30) days of the change. The notification shall include the name and title of the new person assigned by the source owner or operator to represent and bind the facility in environmental permitting affairs. All representations, agreement to terms and conditions and covenants made by the former responsible person that were used in the establishment of limiting permit conditions on this permit will continue to be binding on the facility until such time that a revision to this permit is obtained that would change said representations, agreements and covenants.

(conditions continued on next page)

\_\_\_\_\_  
TECHNICAL SECRETARY

No Authority is Granted by this Permit to Operate, Construct, or Maintain any Installation in Violation of any Law, Statute, Code, Ordinance, Rule, or Regulation of the State of Tennessee or any of its Political Subdivisions.

NON-TRANSFERABLE

**POST AT INSTALLATION ADDRESS**

SECTION I: The following conditions shall apply to all sections of this permit unless otherwise noted.
--

2. The permittee has elected to opt-out of being issued a major source operating permit pursuant to Division Rule 1200-3-9-.02(11)(a). The permittee would be considered a major source because their current potential to emit for volatile organic compounds is greater than 100 tons per year at the time of application. The permittee has agreed to be subject to limitation(s) in order to be below the major source applicability threshold for volatile organic compounds of 100 tons per year.
3. Any non-compliance with any condition(s) of this permit set to restrain the "potential to emit" below the applicability thresholds of 1200-3-9-.02(11) of the Tennessee Air Pollution Control Regulations shall be reported in writing to the Technical Secretary within three (3) working days of such discovery. This notification, at a minimum, shall include the identification of the source, identification of the permit condition(s) violated, and details of the violation.
4. A report stating the compliance status of this facility with **Conditions 5 and 6** shall be submitted by March 31 of every year, beginning in the year 2006. This report shall cover the preceding calendar year and shall include the records required by **Condition 18** (a summary report of recordkeeping shall be acceptable, provided that sufficient information is included to determine compliance). The report shall be submitted to the Knoxville Environmental Assistance Center at the following address:

Knoxville Environmental Assistance Center  
Division of Air Pollution Control  
2700 Middlebrook Pike  
Knoxville, TN 37921
5. The maximum emission rate from the entire facility for any single hazardous air pollutant (HAP), listed pursuant to Section 112(b) of the Federal Act, shall not exceed 9.9 tons per year. Total emissions of all HAPs from the entire facility shall not exceed 24.9 tons per year. In the event that the emission rates from the entire facility exceed these limits, the permittee shall provide written notification of the exceedance(s) to the Technical Secretary within fifteen (15) days from the date of discovery. Compliance with this condition shall be assured by compliance with **Conditions 15, 16, and 18**.
6. Volatile organic compounds (VOC) emitted from this facility, including organic HAPs, shall not exceed 9.9 tons per year. Compliance with this condition is based on the stack test performed on December 23, 2001, and shall be assured by compliance with **Conditions 15 and 18**.
7. Visible emissions from this facility shall not exhibit greater than zero percent (0%) opacity as determined by EPA Method 9, as published in 40 CFR 60, Appendix A (six-minute average). This emission limitation is established pursuant to Rule 1200-3-5-.01(3) of the Tennessee Air Pollution Control Regulations and the agreement letter dated July 22, 1999, from the permittee.
8. The process shall not operate without the use of the air pollution control devices (carbon adsorbers and HEPA filters).
9. Routine maintenance, as required to maintain specified emission limits, shall be performed on the air pollution control device(s). Maintenance records shall be recorded in a suitable permanent form and kept available for inspection by the Division. These records must be retained for a period of not less than five (5) years.
10. The issuance of this permit does not exempt the permittee from any requirements of the Environmental Protection Agency pertaining to the emissions from the operation of this source.
11. The issuance of this permit supersedes any previously issued permit(s) for this facility.
12. The permittee shall apply for renewal of this permit not less than sixty (60) days prior to the permit expiration date, pursuant to Rule 1200-3-9-.02(3) of the Tennessee Air Pollution Control Regulations.

(conditions continued on next page)

SECTION II: SOURCE SPECIFIC CONDITIONS
--

<b>73-0063-01</b> Mixed Waste Processing Facility with Carbon Adsorber, Baghouse, and HEPA Filter Controls
--

13. The total stated design input capacity of this source is 16,764 pounds per hour (lb/hr) on a daily average basis. The Technical Secretary may require proof of compliance with this rate.
14. Particulate matter emitted from this source shall not exceed 1.0 lb/hr and 2.0 tons during any period of twelve consecutive months. This emission limitation is established pursuant to Rule 1200-3-26-.02(6)(b) of the Tennessee Air Pollution Control Regulations and the information contained in the agreement letter dated July 22, 1999 from the permittee. Compliance with this condition shall be assured by compliance with **Conditions 17 and 18**.
15. The permittee shall perform carbon saturation measurements on the inspection room and thermal desorber granular activated carbon (GAC) as follows:
  - a) Carbon saturation measurements shall be performed in accordance with ASTM D2867-83 and ASTM D3175-89a, or equivalent method using the nickel-chromium crucible equipment option. The permittee may utilize an alternative sampling plan with prior approval by the Technical Secretary.
  - b) The permittee shall collect a representative sample from the middle section of each activated carbon canister using the schedule specified below.
  - c) Except as noted below, samples shall be collected and analyzed for VOC saturation on the second and last Friday of every month.
    - i. If the process has not been in continuous operation since the last sampling event, then the permittee shall collect samples once the process has been in operation for 100 hours.
    - ii. If the second or last Friday of any month occurs on a holiday, the permittee shall collect samples on the following work day.
  - d) When the carbon saturation measurement reaches 75%, the sampling frequency will increase to once every five (5) operating days.
  - e) When the carbon saturation measurement reaches 90%, the carbon media will be replaced within forty-eight (48) operating hours.
16. The permittee shall utilize sulfur-impregnated GAC for all operations that have the potential to emit mercury. The permittee shall analyze all sulfur-impregnated GAC for mercury as follows:
  - a) The permittee shall perform headspace analysis on the sulfur impregnated GAC by collecting a representative sample of the canister and analyzing the headspace of the sample using a portable mercury vapor analyzer. Alternatively, the permittee may directly sample the headspace of the canister using a portable mercury vapor analyzer.
  - b) Except as noted below, the permittee shall analyze each sulfur-impregnated GAC for mercury on the second and last Friday of every month.
    - i. If the process has not been in continuous operation since the last sampling event, then the permittee shall collect samples once the process has been in operation for 100 hours.
    - ii. If the second or last Friday of any month occurs on a holiday, the permittee shall collect samples on the following work day.

(conditions continued on next page)

- c) If any mercury vapor is detected, the permittee shall replace the sulfur-impregnated GAC media prior to restarting mercury processing operations.

17. The following evaluations shall be performed for all process ventilation systems:

- a) The permittee shall perform an air balance (air flow measurements with adjustment of control devices, fan speeds, and other equipment as necessary) within the radiation control areas at least semiannually, and following any ventilation system or process change that could potentially alter the effectiveness of the control devices.
- b) The permittee shall calculate the particulate removal efficiency of the main filtration system HEPA filters at least semiannually, and immediately following the installation of new HEPA filters. The permittee shall determine particulate removal efficiency using dioctyl phthalate (DOP) or comparable testing in accordance with relevant ANSI standards.

18. Records of all testing and maintenance required by **Conditions 15, 16, and 17** shall be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. These records must be retained for a period of not less than five (5) years.

(end of conditions)